
Clearing common equipment faults

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Common equipment faults

Common equipment (CE) functions perform system control and switching. Common equipment in the Meridian 1 can include:

- Bus Terminating Unit (BTU): provides logical termination to CPU and network buses (options 51, 51C, 61, 61C, 71, 81, and 81C)
- Changeover and Memory Arbitrator (CMA) card: provides CPU access to RAM memory; allows a CPU to access redundant memory in a dual CPU system (options 51, 61, and 71)
- Central Processing Unit (CPU): performs system call processing functions
- Call Processor (CP): performs system arithmetic and logic functions
- Data cartridge: allows access to software packages purchased
- Mass Storage Interface card (floppy disk interface card, mass storage interface card, or enhanced mass storage interface card): interface between the CPU and the mass storage unit
- Mass Storage Unit (floppy disk unit, multi drive unit, small system multi drive unit, or core multi disk unit): provides a backup for programs and data stored in system memory
- Read Only Memory (ROM) card: provides memory for the CPU; the daughterboard on the QPC687 CPU Card (options 21, 21A), the NTND01 ICM Card (option 21E), the QPC579 CPU Function Card (options 51, 61, 71), or the NT6D66 Call Processor (options 51C, 61C, 81, and 81C)
- Serial Data Interface (SDI) card: provides ports between the CPU and external devices
- Segmented Bus Extender (SBE) card: extends the CE bus signals to the network module (option 71)
- Core to Network Interface (CNI) card: links the CE bus with the three-port extender (3PE) card(s) in the network slots (options 51C, 61C, 81, and 81C)

- Three-Port Extender (3PE) card: extends CPU signals to the network (option 61), between the SBE and the network (option 71), and between Core Network Interface (CNI) and the network (options 51C, 61C, 81, and 81C).

Common equipment faults can disable the CPU or the mass storage unit and stop call processing. In addition, other types of equipment (such as network equipment) may not operate properly while there is a CE fault in the system.

Fault clearing procedures

[Table 9](#) lists common equipment fault indications. To clear faults, select the symptom that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Note: Clear any power faults before you try to clear common equipment faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check “How to clear faults” on page 3 to see if another type of fault is indicated.

After the fault is corrected, go to “Final maintenance procedure” on page 177 to completely restore normal operation.

WARNING

Module covers are *not* hinged; do *not* let go of the cover. Lift the cover away from the module and set it out of your work area.

Table 9
Common equipment fault indicators

Indicator	Possible indications
System messages	BSD080, 085, 086, 103 CED messages INI001, 002, 004, 005 IOD006, 007, 060, 061, 291–297 NWS030, 102, 103, 142 SYS messages
Visual indicators	Major alarm on attendant consoles Red LED lit on column top cap Red LED lit on CE card of active CPU
Maintenance displays	QPC580 CPU Interface NT8D19 Memory/Peripheral Signaling QPC584 Mass Storage Interface NT9D34 Enhanced Mass Storage Interface QPC742 Floppy Disk Interface NTND01 ICM card NT5D20 IOP/CMDU NTND10 CMA card NT6D66, NT9D19, NT5D10 Call Processor NT6D63 IOP card NT5D61 IODU/C card
User reports	Major alarm reported by attendant

Symptom:**Call processing stopped (options 21A and 21)**

Call processing has stopped on a single CPU system. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up codes and system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CPU card: QPC687
- Data cartridge: QMM42
- FDI card: QPC742
- FDU: NT8D68
- Memory/peripheral signaling card: NT8D19
- ROM card: QPC940
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective module power supply	Make sure the green LED on the CE/PE power supply is lit. If it is not lit, go to "Clearing power faults" on page 19. If the power supply LED is lit, go to the next possible cause.
Initialization required	Press the manual initialize (Man Int) button on the memory/peripheral signaling card. If the system initializes, check all fault indicators and clear any faults indicated. If the system does not initialize, unseat network cards one at a time. If the system initializes, replace the last card you removed (it is faulty). If the system will not initialize, go to the next possible cause.

(continued)

Possible cause	Action
Defective FDI card or FDU	Unseat the FDU and FDI card, then reinstall them. Make sure the cable between the FDU and FDI card is securely connected. If the system does not recover, continue with this procedure. If a disabled FDI card is indicated, make sure the data cartridge is securely attached: — Check the switch settings; if necessary, correct the switch settings. — Try to enable the FDI card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the FDI is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled FDU is indicated: — replace it — if the FDU is still disabled, replace the cable between the FDU and FDI card If the system does not recover, go to the next possible cause.
Sysload required	Press the reload (reset) button on the CPU card. If a sysload (reload) occurs, check all fault indicators and clear any faults indicated. If the system will not sysload, go to the next possible cause.
Defective CE card	Unseat the cards, then reinstall them. If the system does not recover, check the CPU card: — Make sure the ROM card is properly installed on the CPU card. — Replace the ICPU card. — If necessary, replace the ROM card. If the system will not sysload, replace the memory/peripheral signaling card. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:

Call processing stopped (option 21E)

Call processing has stopped on a single CPU system. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up codes and system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- ICM card: NTND01
- Data cartridge: QMM42
- FDI card: QPC742
- EMSI card: NT9D34
- FDU: NTND15
- SMDU: NT9D33
- MSPS card: NTND02
- ROM card: NTND31
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective module power supply	Make sure the green LED on the CE/PE power supply is lit. If it is not lit, go to “Clearing power faults” on page 19. If the power supply LED is lit, go to the next possible cause.
Initialization required	Press the manual initialize (Man Int) button on the ICM card. If the system initializes, check all fault indicators and clear any faults indicated. If the system does not initialize, unseat network cards one at a time. If the system initializes, replace the last card you removed (it is faulty). If the system will not initialize, go to the next possible cause.
Defective FDI card or FDU	Unseat the FDU and FDI card then reinstall them. Make sure the cable between the FDU and FDI card is securely connected. If the system does not recover, continue with this procedure. If a disabled FDI card is indicated: — Make sure the data cartridge is securely attached. — Check the switch settings; if necessary, correct the switch settings. — Try to enable the FDI card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the FDI is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled FDU is indicated: — Replace it. — If the FDU is still disabled, replace the cable between the FDU and FDI card. If the system does not recover, go to the next possible cause.

(continued)

Possible cause	Action
Defective EMSI card or SMDU	Unseat the SMDU and EMSI card then reinstall them. Make sure the cable between the SMDU and EMSI card is securely connected. If the system does not recover, continue with this procedure. If a disabled EMSI card is indicated: — Make sure the data cartridge is securely attached. — Check the switch settings; if necessary, correct the switch settings. — Try to enable the EMSI card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the EMSI is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled SMDU is indicated: — Replace it. — If the SMDU is still disabled, replace the cable between the SMDU and SMDU card. If the system does not recover, go to the next possible cause.
Sysload required	Press the reload (reset) button on the ICM card. If a sysload (reload) occurs, check all fault indicators and clear any faults indicated. If the system will not sysload, go to the next possible cause.
Defective CE card	Unseat the cards then reinstall them. If the system does not recover, check the ICM card: — Make sure the ROM card is properly installed on the ICM card. — Replace the ICM card. — If necessary, replace the ROM card. If the system will not sysload, replace the MSPS card. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on memory/peripheral signaling card (options 21A and 21)**

The red LED is lit on the memory/peripheral signaling card and call processing has stopped. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CPU card: QPC687
- Memory/peripheral signaling card: NT8D19
- ROM card: QPC940
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective memory/peripheral signaling card	Unseat the card then, reinstall it. If the LED on the card is still lit, replace the card. If the LED turns off but the system does not recover, go to the next possible cause.
Defective CPU card	Unseat the CPU card then reinstall it. If the system does not recover: — Make sure the ROM card is properly installed. — As necessary, replace the CPU card and the ROM card. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on MSPS card (option 21E)**

The red LED is lit on the MSPS card and call processing has stopped. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- ICM card: NTND01
- MSPS card: NTND02
- ROM card: NTND31
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective MSPS card	Unseat the card, then reinstall it. Set the Enb/Dis switch on the NT8D18 Network/DTR Card to Dis, then back to Enb. If the LED on the card is still lit, replace the card. If the LED turns off but the system does not recover, go to the next possible cause.
Defective ICM card	Unseat the ICM card then reinstall it. If the system does not recover: — Make sure the ROM card is properly installed. — As necessary, replace the ICM card and the ROM card. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:
Fault indicated on the CPU card (options 21A and 21)

The red LED is lit on the CPU card. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CPU card: QPC687
- FDI card: QPC742
- Memory/peripheral signaling card: NT8D19
- ROM card: QPC940
- SDI paddle board: NT8D41
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective FDI card (lit LED)	Unseat the card, then reinstall it. If the card does not recover: — Make sure the cable between the FDU and FDI card is securely connected. — Check the switch settings; if necessary, correct the switch settings and try to enable the card. — If you cannot load a program or the card will not enable, replace the card. If the CPU is still faulty, go to the next possible cause.

(continued)

Possible cause	Action
Defective SDI	Check each SDI port by entering: LD 37 TTY x “x” represents the number of the interface device attached to the port — If software is disabled, try to enable it (software disable, hardware disable, then reenable). — If the card will not enable, replace it. If the CPU is still faulty, go to the next possible cause.
CPU card (lit LED)	Check the CPU card: — Make sure the ROM card is properly installed. — As necessary, replace the CPU card and the ROM card. If the CPU is still faulty, replace the memory/peripheral signaling card. If the CPU remains faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:
Fault indicated on the ICM card (option 21E)

The red LED is lit on the ICM card. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- ICM card: NTND01
- FDI or EMSI card: QPC742, NT9D34
- MSPS card: NTND02
- ROM card: NTND31
- SDI paddle board: NT8D41
- CE/PE card cage: NT8D1103

Possible cause	Action
Defective FDI card (lit LED)	Unseat the card then reinstall it. If the card does not recover: — Make sure the cable between the FDU and FDI card is securely connected. — Check the switch settings; if necessary, correct the switch settings and try to enable the card. — If you cannot load a program or the card will not enable, replace the card. If the CPU is still faulty, go to the next possible cause.

(continued)

Possible cause	Action
Defective EMSI card (lit LED)	Unseat the card then reinstall it. If the card does not recover: — Make sure the cable between the SMDU and EMSI card is securely connected. — Check the switch settings; if necessary, correct the switch settings and try to enable the card. — If you cannot load a program or the card will not enable, replace the card. If the CPU is still faulty, go to the next possible cause.
Defective SDI	Check each SDI port by entering: LD 37 TTY x “x” represents the number of the interface device attached to the port. — If software is disabled, try to enable it (software disable, hardware disable, then reenable). — If the card will not enable, replace it. If the CPU is still faulty, go to the next possible cause.
ICM card (lit LED)	Check the ICM card: — make sure the ROM card is properly installed — as necessary, replace the ICM card and the ROM card If the CPU is still faulty, replace the MSPS card. If the CPU remains faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:

Call processing stopped (option 51)

Call processing has stopped on a single CPU system. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure. Before you begin:

- Make sure the normal/maintenance switch on the QPC580 CPU Interface Card is set to Maint.
- Take any action indicated by the maintenance display codes.

Note: Continually observe and look up codes and system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- BTU: QPC477
- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- Data cartridge: QMM42
- FDI, MSI, or EMSI card: QPC742, QPC584, NT9D34
- FDU or MDU: NT8D68 or NTND15, NT8D69 or NTND16
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- CPU/network card cage: NT6D3903

Possible cause	Action
Defective module power supply	Make sure the green LED on the CE power supply is lit. If it is not lit, go to "Clearing power faults" on page 19. If the power supply LED is lit, go to the next possible cause.
Initialization required	Press the manual initialize (Man Int) button on the IF card. If the system initializes, clear any faults indicated. If the system does not initialize, unseat network cards one at a time. If the system initializes, replace the last card you removed (it is faulty). If the system will not initialize, go to the next possible cause.
Defective mass storage unit or interface card	Unseat the mass storage unit and interface card, then reinstall them. Make sure the cable between the interface card and the unit is securely connected. If the system does not recover, continue with this procedure. If a disabled FDI, MSI, or EMSI card is indicated: — Make sure the data cartridge is securely attached. — Check the switch settings; if necessary, correct the switch settings. — Try to enable the interface card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the interface card is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled FDU or MDU is indicated: — Replace it. — If the unit is still disabled, replace the cable between the unit and the interface card. If the system does not recover, go to the next possible cause.
Sysload required	Press the reload (Rld) button on the CMA card. If a sysload (reload) occurs, clear any faults indicated. If the system will not sysload, go to the next possible cause.

(continued)

Possible cause	Action
Defective CE card	Unseat the CE cards then reinstall them. If the system does not recover, continue with this procedure. Try to sysload after any card is replaced. Make sure the cable between the IF and FN cards is securely connected. Make sure the CMA cable is securely connected. Check the CPU cards: — Make sure the ROM card is properly installed on the FN card. — As necessary, replace the IF card, the FN card, the ROM card, and the cable. If the system does not sysload, replace the memory card. If the system does not sysload, replace the CMA card. If necessary, replace the CMA cable. If the system does not sysload, replace the BTU. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on memory card (option 51)**

The red LED is lit on the memory card and call processing has stopped. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- CPU/network card cage: NT6D3903

Possible cause	Action
Defective memory card	Unseat the card, then reinstall it. If the LED on the card is still lit, replace the card. If the LED turns off but the system does not recover, go to the next possible cause.

(continued)

Possible cause	Action
Defective CE card	Unseat the CE cards then reinstall them. If the system does not recover, continue with this procedure. Make sure the cable between the IF and FN cards is securely connected. Make sure the CMA cable is securely connected. Check the CPU cards: — Make sure the ROM card is properly installed on the FN card. — As necessary, replace the IF card, the FN card, the ROM card, and the QCAD240 cable between the IF and FN cards. If the system does not recover, replace the CMA card. If necessary, replace the CMA cable. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on a common equipment card (option 51)**

The red LED is lit on a common equipment card, other than the memory card. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Make sure the normal/maintenance switch on the QPC580 CPU Interface Card is set to Maint. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- FDI, MSI, or EMSI card: QPC742, QPC584, NT9D34
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- SDI cards: NT8D41, QPC513, QPC841
- CPU/network card cage: NT6D3903

Possible cause	Action
Defective FDI, MSI, or EMSI card (lit LED)	Unseat the card, then reinstall it. If the card does not recover: — Make sure the cable between the mass storage unit and the interface card is securely connected. — Check the switch settings; if necessary, correct the switch settings and try to enable. — If you cannot load a program or the card will not enable, replace the card. If the CPU is still faulty, go to the next possible cause.

(continued)

Possible cause	Action
Defective SDI	Check each SDI port by entering: LD 37 TTY x "x" represents the number of the interface device attached to the port. — If software is disabled, try to enable it (software disable, hardware disable, then reenable). — If the card will not enable, replace it. If the CPU is still faulty, go to the next possible cause.
Defective CE card (lit LED)	Unseat the CE cards, then reinstall them. If all cards do not recover, continue with this procedure. If the LED is lit on the IF card: — Make sure the cable between the IF and FN cards is securely connected. — Make sure the ROM card is properly installed on the FN card. — As necessary, replace the IF card, the FN card, the ROM card, and the QCAD240 cable between the IF and FN cards. If the LED is lit on the CMA, make sure the CMA cable is securely connected. If the cable is connected, enter: LD 35 STAT CMA x "x" represents the CMA number. — If the CMA is disabled, try to enable it (software disable, hardware disable, then try to reenable). — If the card will not enable, replace it. — If the replacement CMA does not enable, replace the cable.

(continued)

Possible cause	Action
	If the LED is lit on the memory card, enter: LD 35 STAT MEM x "x" represents a two-digit number—the first digit is the CPU number (0 or 1), the second is the memory card number. — If the card is disabled, try to enable it (software disable, then reenable): ENL x "x" represents the memory card number. — If the card will not enable, enter: MEM x — If the card fails the memory test, replace it. If the CPU is still faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:

Call processing stopped (options 61 and 71)

Call processing has stopped on a dual CPU system. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure. Before you begin:

- Make sure the normal/maintenance switch on both QPC580 CPU Interface Cards is set to Norm.
- Take any action indicated by the maintenance display codes.

Note: Continually observe and look up codes and system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- BTU: QPC477
- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- Data cartridge: QMM42
- FDI, MSI or EMSI card: QPC742, QPC584, NT9D34
- FDU or MDU: NT8D68 or NTND15, NT8D69 or NTND16
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- SBE card: QPC215 (option 71)
- 3PE card: QPC441
- CPU/network or CPU card cage: NT6D3903, NT8D3403

Possible cause	Action
Defective module power supply	Make sure the green LED on the CE power supply is lit. If it is not lit, go to “Clearing power faults” on page 19. If the power supply LED is lit, go to the next possible cause.
Initialization required	Press the manual initialize (Man Int) button on the IF card on the active CPU. If the system initializes, clear any faults indicated. If the system does not initialize, unseat network cards one at a time. If the system initializes, replace the last card you removed (it is faulty). If the system will not initialize, go to the next possible cause.
Defective mass storage unit or interface card	Unseat the mass storage unit and the interface card on the inactive CPU, then reinstall them. Make sure the cable between the interface card and the unit is securely connected. If the system does not recover, continue with this procedure. If a disabled interface card is indicated: — Make sure the data cartridge is securely attached. — Check the switch settings; if necessary, correct the switch settings. — Try to enable the interface card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the interface card is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled mass storage unit is indicated: — Replace it. — If the unit is still disabled, replace the cable between the unit and the interface card. If the system does not recover, go to the next possible cause.
Sysload required	Simultaneously press reload (Rld) button on both CMA cards. If a sysload (reload) occurs, clear any faults indicated. If the system will not sysload, go to the next possible cause.

(continued)

Possible cause	Action
Defective CE card	Unseat the CE cards, then reinstall them: — Make sure all CE cables are securely connected, including the cable between the IF and FN cards. — Make sure the ROM card is properly installed on the FN card. If the system does not recover, continue with this procedure. Try to sysload after any card is replaced. Check the inactive CPU by entering: LD 35 TCPU — If a disabled card is indicated, check it with the appropriate test or stat command. — Try to software enable any disabled card (software disable, hardware disable, then reenable). If the system does not recover: — Unseat all CE cards (including SBE and 3PE cards) on the inactive CPU; try to sysload by pressing the reload button on the active CMA. — If a sysload occurs, reinsert the cards one at a time; the system will fail when the defective card is inserted; replace that card. If the system does not sysload when all cards are reinstalled on the inactive CPU: — Remove the cards from the other CPU and try to sysload. — Again, if a sysload occurs, reinsert the cards one at a time; replace the card that causes the failure. If the system still does not sysload, one at a time, replace the CE cables until a sysload occurs. If the system does not recover, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on a memory card (options 61 and 71)**

The red LED is lit on a memory card. The dual CPU system will be operating but may be limited to one CPU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- CPU/Network or CPU card cage: NT6D3903, NT8D3403

Possible cause	Action
Defective Memory card	Check disabled memory by entering: LD 35 LDIS If the disabled memory card is on the active CPU, test CPUs by entering: TCPU If the response is "OK," switch CPUs by entering: SCPU Test the disabled Memory by entering: MEM x "x" represents the memory card number. If the memory card fails the test, replace it.

(continued)

Possible cause	Action
	If the memory card passes the test, software disable it, then try to reenable by entering: ENL x If the card will not enable, replace it. If all memory cards are enabled but the CPU is still faulty, go to the next possible cause.
Defective CMA	Make sure the cable between the CMA cards is securely connected. Check the status of the CMA on the inactive CPU by entering: STAT CMA x“x” represents the CMA number. If the CMA is enabled, test CPUs by entering: TCPU If the response is “OK” switch CPUs by entering: SCPU If the CPU cannot switch but additional system messages do not indicate a CMA problem, go to the next possible cause. If the CMA is disabled or additional system messages indicate a CMA problem, try to enable the CMA by entering: ENL CMA x If the card will not enable, replace it. If the CMA is enabled but the CPU still will not switch, go to the next possible cause.
Defective CE card	Unseat the CE cards on the inactive CPU, then reinstall them: — Make sure all CE cables are securely connected, including the cable between the IF and FN cards. — Make sure the ROM card is properly installed. If the CPU is still faulty, continue with this procedure.

(continued)

Possible cause	Action
	Check the inactive CPU by entering: LD 35 TCPU — If a disabled card is indicated, check it with the appropriate test or stat command. — Try to software enable any disabled card (software disable, hardware disable, then reenable). If the CPU is still faulty: — Unseat all CE cards on the inactive CPU; try to sysload by pressing the reload button on the active CMA. — If a sysload occurs, reinsert the cards one at a time; the system will fail when the defective card is inserted; replace that card. If the CPU is still faulty, one at a time, replace the CE cables until a sysload occurs. If the CPU is still faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:

Fault indicated on a common equipment card (options 61 and 71)

The red LED is lit on a common equipment card, other than a memory card. The dual CPU system will still be operating but may be limited to one CPU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Make sure the normal/maintenance switch on both QPC580 CPU Interface Cards is set to Norm. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- BTU: QPC477
- CMA card: QPC581 or NTND10
- FN card: QPC579
- IF card: QPC580
- FDI, MSI, or EMSI card: QPC742, QPC584, NT9D34
- Memory card: QPC583 or NTND09
- ROM card: QPC939 or NTND08
- SBE card: QPC215 (option 71)
- SDI cards: NT8D41, QPC513, QPC841
- 3PE card: QPC441
- CPU/network or CPU card cage: NT6D3903, NT8D3403

Possible cause	Action
Defective FDI, MSI, or EMSI card (lit LED)	Unseat the FDI, MSI, or EMSI card, then reinstall it. If the card does not recover, continue with this procedure. Make sure the cable between the mass storage unit and the interface card is securely connected. Check the card by entering: LD 37 MSI 0 — If the card is disabled, try to enable it (software disable, hardware disable, then try to reenable). — If the card will not enable, check switch settings; if necessary, correct the switch settings and try to enable. — If the card will not enable, replace the card. If the CPU is still faulty, go to the next possible cause.
Defective SDI	Check each SDI port by entering: LD 37 STAT TTY — If software is disabled, try to enable it (software disable, hardware disable, then reenable). — If the card will not enable, replace it. If the CPU is still faulty, go to the next possible cause.

(continued)

Possible cause	Action
Defective CE card (lit LED)	Unseat the cards then reinstall them. Make sure all cables are securely connected. If all cards do not recover, continue with this procedure. If the LED is lit on the IF card: — Make sure the cable between the IF and FN cards is securely connected. — Make sure the ROM card is properly installed on the FN card. — As necessary, replace the IF card, the FN card, the ROM card, and the QCAD240 cable between the IF and FN cards. If the LED is lit on some other CE card, enter: LD 35 and the appropriate test or stat command to check the status of the card: — If a card is disabled, try to enable it (software disable, hardware disable, then try to reenabte). — If the card will not enable, replace it. — If the card enables and the LED turns off, test the CPU by entering: LD 35 TCPU If the CPU is still faulty, replace the CE cards one at a time until the fault clears. If the CPU is still faulty, replace the CE cables one at a time. If the CPU remains faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module.

Symptom:**Fault indicated on a common equipment card
(options 51C, 61C, 81, and 81C)**

The red LED is lit or the display is indicating a fault on a common equipment card. The dual Core system will still be operating but may be limited to one CP. Option 51C with a single CPU may or may not process calls, depending on the problem. Look up system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given by these codes. If the fault does not clear, use this procedure.

Note: Make sure the normal/maintenance switch on both Call Processor cards is set to Norm for options 61C, 81, and 81C. Continually observe and look up system messages as you perform this procedure.

For information on switch settings for the applicable Core cards, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- CP card
- CP to CP cable: NTND11
- IODU/C card: NT5D61
- IOP/CMDU card: NT5D20
- IOP card: NT6D63
- CNI card: NT6D65
- 3PE card: QPC441
- Core backplane: NTND68 (option 81)
- CPNET backplane: NT9D1102 (options 51C and 61C)
- CPNET2 backplane: NT5D2102 (options 51C, 61C, and 81C)
- CBT card: NT6D6003
- Core or Core/Network card cage: NT6D6008, NT9D1101, or NT5D2101

Possible cause	Action
Defective serial I/O ports	Check each SDI port by entering: LD 37 STAT TTY — If software is disabled, try to enable it (software disable, hardware disable, then try to reenable). — If the card will not enable, replace it. If the CPU is still faulty, go to the next possible cause.
Defective IOP card	Check the IOP card: — Reinstall the IOP card, test it, and enable it: LD 137 DIS IOP TEST IOP ENL IOP **** If the CPU is still faulty, go to the next possible cause.

(continued)

Possible cause	Action
Defective CE card (lit LED)	Unseat the CP and CNI cards, then reinstall them. Make sure all cables are securely connected. If all cards do not recover, continue with this procedure. If the display on the CP card shows a fault: LD 135 TEST CPU If there is a problem with the test, CCED system messages will be generated. If the LED is lit on some other CE card, check the CNI card, enter: LD 135 TEST CNI c s where c represents the CPU 0 or 1 and s represents the card slot. If the CPU is still faulty, replace the CE cables one at a time. If CNI is faulty, disable the card before you out it. If the CPU remains faulty, go to the next possible cause.
Defective backplane	Replace the card cage assembly in the module. To be able to replace the card cage, you must first switch the system to use the alternate CPU and then disable and remove all the cards in the card cage you wish to replace.

Symptom:

Floppy disk unit not operating

There may be a lit LED on the FDU. There may be a maintenance display code on the FDI card indicating a problem with the FDU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- Cable between FDU and FDI card
- Data cartridge: QMM42
- FDI card: QPC742
- FDU: NT8D68 or NTND15

Possible cause	Action
Defective FDI card or data cartridge	Unseat the FDU and FDI card, then reinstall them. Make sure the cable between the FDU and FDI is securely connected. (In a dual CPU system, check both FDI cards.) If the FDU does not recover, continue with this procedure. Check the FDI: — Make sure the data cartridge is securely attached. — Check switch settings; if necessary, correct the switch settings. — Try to enable the FDI (try to software disable, hardware disable, then reenable). — If you cannot load a program or the FDI is still disabled, replace it. — If necessary, replace the data cartridge. If the FDU is still not operating, go to the next possible cause.
Defective FDU or cable	Replace the FDU. If it is still disabled, replace the cable between the FDU and FDI.

Symptom:

Multi Drive Unit or Small System Multi Drive Unit not operating

There may or may not be a lit LED on the front of the MDU. There may be a maintenance display code on the MSI or EMSI card indicating a problem with the MDU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- Cable between MDU and MSI or EMSI card
 - Data cartridge: QMM42
 - MSI or EMSI card: QPC584, NT9D34
 - MDU: NT8D69 or NTND16
 - SMDU: NT9D33
- CPU/network or CPU card cage: NT6D3903, NT8D3403

Possible cause	Action
Defective MDU (lit LED)	Unseat the MDU and the MSI or EMSI card, then reinstall them. Make sure the cable between the MDU and MSI/EMSI is securely connected. (In a dual CPU system, check both MSI/EMSI cards.) If the MDU does not recover, continue with this procedure. Try to restore the hard drive from disks: — Hardware disable the MSI/EMSI (in a dual CPU system, disable both MSI/EMSI cards), remove the card, and set SW4 to OFF. — Reinstall the MSI/EMSI card and hardware enable it. — Try to software enable the MSI/EMSI card through the Overlay Loader (you will not be in an overlay) by entering: **** ENLT If you cannot load the program, try to enter LD 37 through the maintenance telephone: — If you can load the program, test the port for the system terminal you were using. — If the port is okay, test the cable to the system terminal. — If the cable is okay, check the system terminal. If you cannot load a program through the system terminal or the maintenance telephone, replace the MDU. If the MDU is still faulty, go to the next possible cause.
Defective cable between MDU and MSI or EMSI card	Replace the cable to each MSI or EMSI card. Try to test the MSI/EMSI and MDU by entering: LD 37 MSI x "x" represents the MSI/EMSI card number 0 or 1. If the MDU is still faulty, go to the next possible cause. (continued)

Possible cause	Action
Defective MSI or EMSI card	Check the MSI/EMSI card: — Make sure the data cartridge is securely attached. — Check switch settings; if necessary, correct the switch settings. — Try to enable the MSI/EMSI card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the MSI/EMSI is still disabled, replace it. — If the MSI/EMSI card is still disabled, replace the data cartridge. If the MDU is still faulty, go to the next possible cause.
Defective backplane connection to MDU (LED not lit)	Move the MDU to another acceptable location. Try to test the MDU by entering: MSI x If the MDU is still faulty, replace it. If the MDU enables after it is moved, replace the card cage assembly in the module you took it from.
Defective EMSI card or SMDU	Unseat the SMDU and EMSI card then reinstall them. Make sure the cable between the SMDU and EMSI card is securely connected. If the system does not recover, continue with this procedure. If a disabled EMSI card is indicated: — Make sure the data cartridge is securely attached. — Check the switch settings; if necessary, correct the switch settings. — Try to enable the EMSI card (try to software disable, hardware disable, then reenable). — If you cannot load a program or the EMSI is still disabled, replace it. — If necessary, replace the data cartridge. If a disabled SMDU is indicated: — Replace it. — If the SMDU is still disabled, replace the cable between the EMSI and SMDU card.

Symptom:

Core Multi Disk Unit not operating

There may or may not be a lit LED on the front of the CMDU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- SCSI cable: NTND13
- IOP card: NT6D63
- CMDU:NT6D64
- Core or Core/Network card cage: NT6D6008, NT9D1101

Possible cause	Action
Defective CMDU (lit LED)	Unseat the CMDU, then reinstall it. Make sure the cable between the CMDUs is securely connected. If the CMDU does not recover, continue with this procedure. Try to restore the hard drive from disks: — Stat CMDU, enable it, and test it: <pre>LD 137 STAT CMDU x TEST CMDU x DIS CMDU X SYNC ENL CMDU X</pre> If the problem continues, a CIOD system message appears and the LED lights on the faceplate.

(continued)

Possible cause	Action
	If you cannot load the program, replace the CMDU: — If you can load the program, test the port for the system terminal you were using. — If the port is okay, test the cable to the system terminal. — If the cable is okay, check the system terminal. If the CMDU is still faulty, go to the next possible cause.
Defective SCSI cable between IOPs	Replace the SCSI cable. Test IOP-to-IOP connection: LD 137 TEST SCSI If the CMDU is still faulty, go to the next possible cause.
Defective IOP card	Check the IOP card: — Reinstall the IOP card, test it, and enable it: LD 137 DIS IOP TEST IOP ENL IOP If the CMDU is still faulty, go to the next possible cause.
Defective backplane connection to CMDU (LED not lit)	Move the CMDU to another acceptable location. Try to test the CMDU by entering: LD 137 TEST CMDU x “x” represents the CMDU card number 0 or 1 If the CMDU is still faulty, replace it. If the CMDU enables after it is moved, replace the card cage assembly in the module you took it from.

Symptom:

IOP/CMDU not operating

There may or may not be a lit LED on the front of the IOP/CMDU. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- IOP/CMDU:NT5D20
- Core/Network card cage: NT5D2101

Possible cause	Action
Defective IOP/CMDU (lit LED)	Unseat the IOP/CMDU, then reinstall it. If the IOP/CMDU does not recover, continue with this procedure. Try to restore the hard drive from disks: — Stat IOP/CMDU, enable it, and test it: LD 137 STAT CMDU x TEST CMDU x DIS CMDU X SYNC ENL CMDU X If the problem continues, a CIOD system message appears and the LED lights on the faceplate.

(continued)

Possible cause	Action
	If you cannot load the program, replace the IOP/CMDU: — If you can load the program, test the port for the system terminal you were using. — If the port is okay, test the cable to the system terminal. — If the cable is okay, check the system terminal. If the CMDU is still faulty, go to the next possible cause.
Defective IOP card	Check the IOP card: — Reinstall the IOP card, test it, and enable it: LD 137 DIS IOP TEST IOP ENL IOP If the IOP/CMDU is still faulty, go to the next possible cause.
Defective backplane connection to IOP/CMDU (LED not lit)	Try to test the IOP/CMDU by entering: LD 137 TEST CMDU x "x" represents the IOP/CMDU card number 0 or 1 If the CMDU is still faulty, replace it. If the CMDU enables after it is moved, replace the card cage assembly in the module you took it from.

Symptom:

IODU/C not operating

There may or may not be a lit LED on the front of the IODU/C. Look up all system messages and maintenance display codes in the *X11 system messages guide* and follow the instructions given. If the fault does not clear, use this procedure.

Note: Take any action indicated by the maintenance display codes. Continually observe and look up system messages as you perform this procedure.

For more information on IODU/C, please see the *IODU/C Reference Guide*. For information on switch settings, see *Circuit card installation and testing* (553-3001-211). Replace equipment as described in *Meridian 1 hardware replacement* (553-3001-520). You may need to replace one of the following:

- IODU/C: NT5D61
- Core/Network card cage: NT5D2101

Possible cause	Action
Defective IODU/C (lit LED)	Unseat the IODU/C, then reinstall it. If the IODU/C does not recover, continue with this procedure. Try to restore the hard drive from disks: — Stat, enable, and test the CMDU part of the IODU/C card: <pre>LD 137 STAT CMDU x TEST CMDU x DIS CMDU X SYNC ENL CMDU X</pre> If the problem continues, a CIOD system message appears and the LED lights on the faceplate.

(continued)

Possible cause	Action
	If you cannot load the program, replace the IODU/C: — If you can load the program, test the port for the system terminal you were using. — If the port is okay, test the cable to the system terminal. — If the cable is okay, check the system terminal. If the CMDU part of the IODU/C is still faulty, go to the next possible cause.
Defective IOP part of the IODU/C card	Check the IOP part of the IODU/C card: — Reinstall the IODU/C card; test and enable the IOP part of the IODU/C card. LD 137 DIS IOP TEST IOP ENL IOP
	If the IODU/C is still faulty, go to the next possible cause.
Defective backplane connection to IODU/C (LED not lit)	Try to test the IODU/C by entering: LD 137 TEST CMDU x “x” represents the IODU/C card number 0 or 1 If the CMDU part of the IODU/C card is still faulty, replace the IODU/C card. If the CMDU part of the IODU/C enables after it is moved, replace the card cage assembly in the module you took it from.
CD-ROM drive not operating	For redundant systems, remove the disk from the CD-ROM drive, place it in the CD-ROM drive of the other Core, and test operation. If the CD-ROM drive is operational you may need to replace the IODU/C card with the faulty CD-ROM drive.

Possible cause	Action
CD disk is damaged	If you have another CD-ROM disk, insert that CD-ROM disk into a known operational IODU/C card, and load the Software Installation Tool from the correct Install Program diskette. In the Software Installation Tool, go to the Tools Menu and select option <j> - "To check the customer-specific part of the CD-ROM." If this test is successful, the message "Checking directory /cdx/xxxx_DMR.Nxx ended successfully" is displayed.x If the test is successful, it is unlikely the CD-ROM disk is damaged. However, if the test indicates a failure to read all files on the CD-ROM disk, then the CD-ROM disk is damaged and should be replaced.
Mismatch between the Security Device and keycode.	Positively identify the NT SDID (8 digits engraved on the face of the Security Device beneath the Nortel logo) with the NT SDID contained on the keycode floppy disk label, and verify the NT SDIDs match.
IODU/C Software Installation Tool does not load	Verify that the correct Install Program diskette is being used for the CP card in your system.